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AEC/MED INVOLVEMENT AT SITE

Control

- ☐ AEC/MED managed operations
- ☐ AEC/MED responsible for accountability
- ☐ AEC/MED overviewed operations
- ☐ Contractor had total control
- ☐ unknown

☐ Health Physics Protection

- ☐ Little or None
- ☐ AEC/MED responsibility
- ☐ Contractor responsibility

MATERIALS HANDLED:

Type (on basis of records reviewed)

- ☒ No Radioactive
- ☐ Natural Radioactive from Feed Materials Production
  - ☐ Ore
  - ☐ Refined Source Material
  - ☐ Residue
- ☐ Natural Radioactive Material from Non-Nuclear Activities
- ☐ Man-Made
- ☐ Other \_\_\_\_\_

Comment \_\_\_\_\_  
\_\_\_\_\_

Quantities (on the basis of records reviewed)

- ☐ None ☐ Production Quantities
- ☐ Small Amounts

Comment \_\_\_\_\_  
\_\_\_\_\_

OTHER PERTINENT FACTS:

- ☐ Facility was Licensed
  - ☐ During AEC/MED-Related Operations
  - ☐ For Similar Activities
  - ☐ For Other Activities

Comment \_\_\_\_\_  
\_\_\_\_\_

☐ Commercial Production Involving Radioactive Material during AEC/MED Operations

☐ Facility was Decontaminated and Released

☐ Availability of Close Out Records

☐ None ☐ Some ☐ Sufficient

☐ Radioactive Status:

YES MAYBE PROBABLY NOT  
NOT

Contaminated	---	---	---	---
Potential for				
Exposure				
(accessible)	---	---	---	---

QUANTITY OF RECORDS AVAILABLE:

☐ Very Little ☐ Some ☐ Sufficient

PROBABILITY OF FINDING ADDITIONAL RECORDS:

☐ Low ☐ Possible ☐ High

RECOMMENDATIONS:

- ☐ Eliminate  
☐ Consider for Remedial Action  
☐ Collect More Data

Comment Research + Developmental work for Fast Breeder Reactor

REFERENCES: See attached

SUMMARY This was part of a research group designing the  
Fast Breeder Reactor. Work involving development +  
fabrication of liquid metal test loops was carried  
out at ANL, Ames, BNL and MIT.

This site did not apparently handle radioactive materials

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JULY-DECEMBER 1953

1763-72  
Dec 21

Considered promising are: thermal reactors using circulating fuel and breeding uranium 233 from thorium, fast plutonium breeders containing fuel that can be processed simply, pressurized water reactors with long-life fuel elements, and sodium-graphite reactors with long-life fuel elements. The group is now working on a preliminary design of a circulating fuel breeder powerplant as a basis for determining approximate costs and the degree of development necessary prior to architect-engineering work. This design will then be compared with other thermal breeder designs.

*Dow Chemical-Detroit Edison Group.* This group and 25 associated companies continued work on a reference design for the special fast breeder type of reactor which it has found most promising. The reactor would utilize highly enriched uranium or plutonium, operate at high temperature, and use a fluid fuel or an easily fabricated solid fuel element.

The group has about 40 full-time scientists and engineers at work. It is concentrating on an enriched, low-melting-point alloy for use in fuel elements and in the breeder blanket. Operation of the reactor and its chemical fuel processing facilities would be integrated at one location.

Dow Chemical and three of the associated companies—Allis Chalmers Manufacturing Co., West Allis, Wis.; Babcock & Wilcox Co., New York, N. Y.; and Ford Motor Co., Dearborn, Mich.—are doing physical research and development on the proposed reactor. In addition, the group has contracted with Nuclear Development Associates, White Plains, N. Y.; Mine Safety Appliance Co., Pittsburgh, Pa.; Clifford Manufacturing Co., Waltham, Mass.; and Modine Manufacturing Co., Racine, Wis., to perform various investigations. Included in these projects are development and fabrication of fuel elements and development of liquid metal test loops. All this work sponsored by the group is coordinated with certain AEC general reactor research and development carried on at Argonne National Laboratory, Ames Laboratory, Battelle Memorial Institute, and Massachusetts Institute of Technology.

The design and cost studies of this group are based on a commercial fuel value for the byproduct fissionable material and the fission products. It is also assumed that the reactor and the processing plant would be completely financed by private capital with no government subsidy.

*Commonwealth Edison-Public Service Group.* In June 1953 the Commonwealth Edison-Public Service group submitted a technical evaluation of several reactor types, including homogeneous and sodium-graphite reactors and a power breeder design developed by the Knolls Atomic Power Laboratory.

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